

Claims:

1. A base pipe for use in a wellscreen, the base pipe comprising:
a tubular body having a first end and a second end;
a plurality of perforations on said tubular body intermediate said first end and said second end;
a termination member disposed on each of said first end and said second end; and
a helical support surface disposed on each of said first and second termination members defining a support surface for receiving at least one continuous layer of filtering material.
2. The base pipe of claim 1, wherein
each termination member is frusto-conical in shape; and
each helical support surface comprises a lead point on a first step-tier, an end point on a last step-tier, and at least one step-tier intermediate said first and last step-tiers such that the diameter of each of said step-tiers grows larger from said lead point to said end point.
3. The base pipe of claim 2, wherein each of said helical support surfaces defines a plurality of helical step-tiers intermediate said first and last step-tiers.
4. The base pipe of claim 3, wherein said first step tier is proximal to said tubular body, and said last step-tier is distal to said tubular body.
5. A wellscreen for use in a wellscreen, the wellscreen comprising:
a base pipe defining a tubular body having a first end and a second end;
a plurality of perforations on said base pipe intermediate said first end and said second end;
a termination member disposed on each of said first end and said second end;

at least one layer of filtering material disposed about said base pipe; and
a helical support surface disposed on each of said first and second termination members for receiving said at least one layer of filtering material.

6. The wellscreen of claim 5, wherein
each termination member is frusto-conical in shape; and
each helical support surface comprises a lead point on a first step-tier, an end point on a last step-tier, and at least one step-tier intermediate said first and last step-tiers such that the diameter of each of said step-tiers grows larger from said lead point to said end point.
7. The wellscreen of claim 6, wherein each of said helical support surfaces defines a plurality of helical step-tiers intermediate said first and last step-tiers.
8. The wellscreen of claim 7, wherein said first step tier is proximal to said base pipe, and said last step-tier is distal to said base pipe.
9. The wellscreen of claim 8, wherein said at least one layer of filtering material includes a leading edge which attaches to each of said helical support surfaces at said lead points, and a trailing edge which attaches to each of said helical support surfaces at said end points.
10. The wellscreen of claim 9, wherein said at least one layer of filtering material defines a first section of non-sintered porous material, a second section of sintered porous material, and a third section of non-sintered porous material, said leading edge residing on said first section of non-sintered porous material, and said trailing edge residing on said third section of non-sintered porous material.
11. The wellscreen of claim 9, wherein said at least one layer of filtering material is substantially fabricated from a sintered screen.

12. The wellscreen of claim 10 further comprising an outer, perforated protective shroud having a first end and a second end, wherein said shroud is placed around said sections of filtering material after said sections of filtering material have been applied to said wellscreen.

13. The wellscreen of claim 12, wherein said first end of said outer, perforated protective shroud is attached to said termination member at said first end of said base pipe, and said second end of said outer, perforated protective shroud is attached to said termination member at said second end of said base pipe.

14. A method of assembling filtering material onto a wellscreen for use in a wellbore, the wellscreen comprising:

- a base pipe defining a tubular body having a first end and a second end;

- a plurality of perforations on said base pipe intermediate said first end and said second end;

- a frusto-conical termination member disposed on each of said first end second ends of said base pipe; and

- a helical support surface disposed on each of said first and second termination members, said helical support surfaces serving as a support surface for receiving filtering material, and each helical support ring comprising a lead point on a first step-tier, an end point on a last step-tier, and at least one step-tier intermediate said first and last step-tiers such that the diameter of each of said step-tiers grows larger from said lead point to said end point;

- comprising the steps of:

- placing said base pipe upon a spool;

- cutting a leading edge of said filtering material to conform to the distance between said lead points on each of said helical support surfaces;

- cutting a trailing edge of said filtering material to conform to the distance between said end points on each of said helical support surfaces;

cutting said filtering material to taper from said leading edge to said trailing edge in order to form a pair of opposite hypotenuse sides, which match the helix angle of said helical support surface;

attaching said leading edge of said filtering material to said lead points on said helical support rings; and

rolling said filtering material onto said helical support surfaces.

15. The method of assembling filtering material of claim 14, wherein said filtering material is rolled onto said helical support surfaces until said trailing edge of said filtering material approximately reaches said end points on said helical support surfaces.

16. The method of assembling filtering material of claim 15, wherein said filtering material is substantially fabricated from a sintered screen.

17. The method of assembling filtering material of claim 15, wherein said filtering material defines a first section of non-sintered porous material, a second section of sintered porous material, and a third section of non-sintered porous material, said leading edge residing on said first section of non-sintered porous material, and said trailing edge residing on said third section of non-sintered porous material.

18. The method of assembling filtering material of claim 15, further comprising the steps of:

attaching said trailing edge of said filtering material onto said end points on said helical support surfaces; and

placing a perforated, outer protective shroud around said sections of filtering material after said sections of filtering material have been rolled onto and attached upon said helical support surfaces, said shroud having a first end and a second end.

19. The method of claim 18, wherein said step of attaching said leading edge of said filtering material to said lead points on said helical support rings includes welding.

20. The method of claim 18, wherein said first end of said outer, perforated protective shroud is attached to said termination member at said first end of said base pipe, and said second end of said outer, perforated protective shroud is attached to said termination member at said second end of said base pipe.